

Applicant(s): Shiqiang Chu
Serial No.: 10/536,648
Filed: May 27, 2005
For: SEAMLESS AGILE DECODER
Art Unit: 2819
Examiner: Young, Brian K.

Attorney Docket No.: US020482

IN THE CLAIMS:

Please consider the following claims:

1. (Currently amended) An apparatus for switching between a plurality of bit stream decoders, each decoder adapted to decode a formatted bit stream having a unique format, the apparatus comprising:

at least one format detector, the format detector gathering information from the bit stream, the information being used by logic to generate an output indication of a particular decoder among the plurality of decoders; and

the logic, the logic being responsive to the output of the at least one format detector to determine the particular decoder,

wherein the at least one format detector at least has means to detect at least one of frame synchronization information of the formatted bit stream and frame structure information of the formatted bit stream.

2. (Original) The apparatus of claim 1, further comprising at least one switch, the at least one switch responsive to the determination of the logic to connect the formatted bit stream to an input of the particular decoder.

3. (Original) The apparatus of claim 1, wherein the particular decoder comprises a decoder responsive to the formatted bit stream to decode the formatted bit stream.

4. (Canceled)

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5. (Original) The apparatus of claim 1, wherein the at least one format detector comprises a device configured to detect header information in the bit stream.

6. (Original) The apparatus of claim 1, wherein the at least one format detector comprises a device configured to detect at least one of code word values, derivatives of code word values, and patterns of code word values, in a portion of a coded content of the bit stream.

7. (Original) The apparatus of claim 1, wherein the at least one format detector comprises at least two of:

a format detector configured to detect frame synchronization information of the bit stream and frame structure information of the bit stream;

a format detector configured to detect header information in the bit stream; and

a format detector configured to detect at least one of a code word, a derivative of a code word, a pattern of code words, a code word value, a derivatives of a code word value, and a pattern of code word values, in a portion of a coded content of the bit stream.

8. (Original) The apparatus of claim 7, wherein the at least two format detectors operate in staged sequence.

9. (Original) The apparatus of claim 8, comprising a later-staged format detector of the at least two format detectors configured to operate only if the earlier-staged format detector of the at least two format detectors returns an ambiguous result.

10. (Original) The apparatus of claim 9, wherein the later-staged format detector comprises a format detector configured to resolve possible ambiguities in results from the earlier-staged format detector stage.

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11. (Original) The apparatus of claim 10, further comprising at least three unique format detectors and resolution logic, the resolution logic responsive to particular ambiguities in the results of a first-stage format detector to select as the second-stage format detector the format detector which can best resolve the particular ambiguities.

12. (Original) The apparatus of claim 7, wherein the at least one format detector comprises a plurality of unique format detectors in parallel and wherein the logic comprises association logic, the association logic operative to receive outputs from the plurality of format detectors and to select a decoder based on at least one format detector output.

13. (Original) The apparatus of claim 12, wherein the association logic selects a decoder based on outputs from a plurality of format detectors, the outputs comprising ambiguity descriptors.

14. (Original) The apparatus of claim 1, wherein the logic uses, without table parsing, at least one lookup table, the at least one lookup table searchable by detection results to provide a decoder determination.

15. (Original) The apparatus of claim 1, wherein the logic comprises logic configured to determine a particular decoder from at least one of frame information, header information, and content code word information.

16. (Original) The apparatus of claim 15, wherein the logic comprises at least one of hardware, software, and firmware.

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17. (Original) The apparatus of claim 1, wherein the format detector comprises logic responsive to an external trigger to initiate format detection.

18. (Original) The apparatus of claim 1, wherein the format detector periodically detects the bit stream format.

19. (Original) The apparatus of claim 1, wherein the format detector continuously detects the bit stream format.

20. (Original) The apparatus of claim 7, further comprising association logic, wherein the at least two format detectors operate in parallel, the association logic operative to at least one of receive a first-in-time unambiguous format detection and unambiguously determine the bit stream format from outputs of the at least two format detectors.

21. (Original) The apparatus of claim 1, wherein the at least one format detector and the logic are integrated.

22. (Currently amended) An apparatus for switching between particular decoders in a plurality of bit stream decoders, each decoder uniquely adapted to decode a formatted bit stream having a correspondingly unique format, the apparatus comprising at least one format detector, the at least one format detector gathering bit stream information from the bit stream, the bit stream information being used to generate an output indication of a particular decoder among the plurality of decoders, wherein logic responsive to bit stream information gathered by the at least one format detector is configured to determine a particular decoder from at least one of frame information, header information, content code word information, and derivatives thereof.

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23. (Canceled)

24. (Canceled)

25. (Currently amended) The apparatus of claim 2322, further comprising at least one switch, the at least one switch responsive to the determination of a particular decoder by the logic to connect the formatted bit stream to the input of the particular decoder.

26. (Original) The apparatus of claim 22, wherein the format detector comprises a device configured to detect at least one of frame synchronization information and frame structure information of the formatted bit stream.

27. (Original) The apparatus of claim 22, wherein the format detector comprises a device configured to detect packet header information in the formatted bit stream.

28. (Original) The apparatus of claim 22, wherein the format detector comprises a device configured to detect at least one of a code word, a code word value, a pattern of code words in a portion of a coded content of the bit stream, a pattern of code word values in a portion of a coded content of the bit stream, and a derivative thereof, wherein the at least one code word, code word value, pattern of code words in a portion of a coded content of the bit stream, pattern of code word values in a portion of a coded content of the bit stream, and derivatives thereof, comprises an indicator of the bit stream format.

29. (Currently amended) A method for selecting among a plurality of decoders for formatted bit streams, the method comprising ~~a step consisting the steps of:~~

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detecting at least one bit stream format indicator in information read from a formatted bit stream;

and

determining from the at least one bit stream format indicator a correct decoder for decoding a detected bit stream format,

wherein the step of determining a correct decoder includes at least looking up a detected format indicator via a source, the source associating decoders with detected format indicators.

30. (Canceled)

31. (Canceled)

32. (Currently amended) The method of claim ~~30~~29, wherein a step of determining a correct decoder includes a steps of:

deriving a format indicator from information read from a formatted bit stream of the formatted bit streams; and

looking up a detected format indicator in a table, the table associating decoders with detected format indicators.

33. (Currently amended) The method of claim ~~30~~29, further comprising a step of switching the formatted bit stream to an input of the correct decoder.

34. (Original) The method of claim 29, wherein the step of detecting the at least one bit stream format indicator in information read from the formatted bit stream comprises detecting at least one of frame synchronization information and frame structure information.

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35. (Original) The method of claim 29, wherein the step of detecting the at least one bit stream format indicator in information read from the formatted bit stream comprises decoding the packet header information in the formatted bit stream.

36. (Original) The method of claim 29, wherein the step of detecting at least one bit stream format indicator in information read from a formatted bit stream comprises detecting at least one of a code word, a derivative of a code word, a pattern of code words, a code word value, a derivative of a code word value, and a pattern of a code word values, in a portion of a coded content of the formatted bit stream.

37. (Original) The method of claim 29, wherein the step of detecting at least one bit stream format indicator in information read from a formatted bit stream comprises detecting at least one of frame information, packet header information, and code words.

38. (Original) The method of claim 29, wherein the step consisting of detecting at least one bit stream format indicator comprises the sub-steps of detecting in sequence at least two of frame information, header information, and code words.

39. (Original) The method of claim 38, wherein a format indicator detecting step occurring later in a sequence comprises a step responsive to an ambiguous result from a format indicator detecting step occurring earlier in the sequence.

40. (Original) The method of claim 39, wherein a later format indicator detecting step comprises a step selected responsive to a particular ambiguity in the results of an earlier format detecting step.

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41. (Original) The method of claim 29, wherein the step consisting of detecting at least one bit stream format indicator comprises detecting a plurality of format indicators in parallel, and wherein the method further comprises at least one of selecting a single format detector output based upon a predetermined criterion and combining the outputs from a plurality of format detectors.